

Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) A method in a computer system for flexibly altering software component behavior, the method comprising:

intercepting a service request made by a software component;

evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation; and

dynamically controlling the software component such that the software component executes the desired behavior.

2. (Original) The method of claim 1 wherein:
intercepting a service request comprises intercepting a software supported system call.

3. (Original) The method of claim 2 wherein:
intercepting a software supported system call further comprises redirecting an entry in an interrupt vector table to alternative code.

4. (Original) The method of claim 1 wherein:
intercepting a service request comprises intercepting a hardware supported system call.

5. (Original) The method of claim 4 wherein:

intercepting a hardware supported system call further comprises redirecting an entry in an interrupt vector table to alternative code.

6. (Original) The method of claim 1 wherein:

intercepting a service request comprises intercepting a software library based subroutine call.

7. (Original) The method of claim 6 wherein:

intercepting a software library based subroutine call further comprises modifying at least one dynamically linked library.

8. (Original) The method of claim 1 wherein:

intercepting a service request comprises intercepting a subroutine based service.

9. (Original) The method of claim 8 wherein:

intercepting a subroutine based service further comprises redirecting the subroutine call instruction to alternative code.

10. (Original) The method of claim 8 wherein:

intercepting a subroutine based service further comprises patching machine language entry code of the subroutine.

11. (Original) The method of claim 1 wherein:

intercepting a service request comprises intercepting a service dispatch mechanism based on dynamic name resolution.

12. (Original) The method of claim 11 wherein:

intercepting a service dispatch mechanism based on dynamic name resolution further comprises modifying service lookup name space.

13. (Original) The method of claim 1 further wherein the desired behavior for the software component further comprises:

executing alternative code in response to intercepting the service request.

14. (Original) The method of claim 13 further comprising:

executing alternative code in addition to calling the service request.

15. (Original) The method of claim 13 wherein:

the alternative code performs an operation with a same purpose as that of the service request.

16. (Original) The method of claim 13 wherein:

the alternative code performs an operation with a different purpose from that of the service request.

17. (Original) The method of claim 1 further wherein the desired behavior for the software component further comprises:

preventing execution of the service request.

18. (Original) The method of claim 17 further comprising:

returning a value to the software component so as to simulate execution of the service request, without actually calling the service request.

19. (Original) The method of claim 1 further wherein the desired behavior for the software component further comprises:

preventing code that executes in response to interception of the service request from accessing at least some data.

20. (Original) The method of claim 19 further comprising:

allowing code that executes in response to interception of the service request to access alternative data, different from requested data.

21. (Previously Presented) The method of claim 20 wherein:

the alternative data comprises a copy of at least some requested data.

22. (Original) The method of claim 19 wherein:

code that executes in response to the interception of the service request comprises at least alternative code.

23. (Original) The method of claim 19 wherein:

code that executes in response to the interception of the service request comprises at least the service request.

24. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

passing alternative parameters to code that executes in response to interception of the service request.

25. (Original) The method of claim 24 further comprising:

creating the alternative parameters by modifying original parameters passed to the service request.

26. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

executing alternative code in response to interception of the service request.

27. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

executing alternative code in response to interception of the service request;

and

executing the service request.

28. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

preventing execution of the service request.

29. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

simulating execution of the service request by returning a value to the software component.

30. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

preventing code that executes in response to interception of the service request from accessing at least some data.

31. (Original) The method of claim 30 further comprising:

allowing code that executes in response to interception of the service request to access alternative data, different from requested data.

32. (Original) The method of claim 31 wherein:

the alternative data comprises a copy of at least some data.

33. (Previously Presented) The method of claim 1 wherein dynamically controlling the software component further comprises:

returning an alternative value to the software component.

34. (Original) The method of claim 33 further comprising:

creating the alternative value by modifying a value returned by the service request.

35. (Original) The method of claim 1 further wherein the desired behavior for the software component further comprises:

preventing code that executes in response to interception of the service request from accessing a system resource.

36. (Original) The method of claim 35 wherein:

the system resource comprises a network.

37. (Original) The method of claim 35 wherein:

the system resource comprises storage media.

38. (Original) The method of claim 35 wherein:

the system resource comprises a file system.

39. (Original) The method of claim 35 wherein:

the system resource comprises a specific file.

40. (Original) The method of claim 35 wherein:

the system resource comprises configuration information.

41. (Original) The method of claim 40 wherein:

the configuration information comprises registry data.

42. (Previously Presented) The method of claim 1 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component is static.

43. (Previously Presented) The method of claim 1 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component comprises a combination of static rules and dynamic rules.

44. (Previously Presented) The method of claim 43 further comprising:
modifying the at least one dynamically alterable condition dependent rule in response to behavior of the software component.

45. (Previously Presented) The method of claim 44 wherein modifying the at least one dynamically alterable condition dependent rule in response to the behavior of the software component further comprises:

responding to an attempt by the software component to access specific data, by creating a rule that specifies that the software component cannot access other data.

46. (Previously Presented) The method of claim 44 wherein modifying the at least one dynamically alterable condition dependent rule in response to the behavior of the software component further comprises:

responding to an attempt by the software component to access specific data, by creating a rule that specifies that the software component cannot perform certain functionality.

47. (Previously Presented) The method of claim 1 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component is based on at least one of the following criteria:

a user with which the software component is associated;
identity of the software component;
a time at which the software component is executing;
history of the software component;
a source of the software component;
data which the software component attempts to access;
functionality that software component attempts to execute; and
computer network resources that the software component attempts to access.

48. (Canceled)

49. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

an interception module, for intercepting a service request made by a software component;

an altered states engine coupled to the interception module, for evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state; and

dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation;

at least one rules database, for storing at least one dynamically alterable condition dependent rule, the rules database being coupled to the altered states engine; and

alternative code for executing in response to an intercepted service request made by the software component, wherein the alternative code is used for dynamically

controlling the software component such that the software component executes the desired behavior, the alternative code being coupled to the altered states engine.

50. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

- a software portion for intercepting a service request made by a software component;

- a software portion for evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

- a software portion for dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation; and

- a software portion for dynamically controlling the software component such that the software component executes the desired behavior.

51. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

- means for intercepting a service request made by a software component;

- means for evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

- means for dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation; and

- means for dynamically controlling the software component such that the software component executes the desired behavior.

52. (Previously Presented) A computer readable medium containing instructions for controlling a processor to perform steps in a method for flexibly altering software component behavior, the steps comprising:

intercepting a service request made by a software component;

evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system;

dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation; and

dynamically controlling the software component such that the software component executes the desired behavior.

53. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

executing alternative code in response to interception of the service request.

54. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

preventing code that executes in response to interception of the service request from accessing at least some data.

55. (Previously Presented) The method of claim 54 further comprising:

allowing code that executes in response to interception of the service request to access alternative data, different from requested data.

56. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

passing alternative parameters to code that executes in response to interception of the service request.

57. (Previously Presented) The method of claim 56 further comprising:
creating the alternative parameters by modifying original parameters passed to the service request.

58. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

executing alternative code in response to interception of the service request.

59. (Previously Presented) The method of claim 58 further comprising:
executing alternative code in response to interception of the service request;
and
executing the service request.

60. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

preventing execution of the service request.

61. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

simulating execution of the service request by returning a value to the software component.

62. (Previously Presented) The method of claim 52 wherein intercepting the service request further comprises:

returning an alternative value to the software component.

63. (Canceled)

64. (Previously Presented) A method in a computer system for flexibly altering software component behavior, the method comprising:

receiving, by an altered states engine, a service request made by a software component;

evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

dynamically selecting at least one desired behavior from among several behaviors for the software component based on the evaluation; and

dynamically controlling the software component such that the software component executes the desired behavior.

65. (Original) The method of claim 64 further wherein the desired behavior for the software component further comprises:

executing alternative code in response to receiving the service request.

66. (Original) The method of claim 65 further comprising:

executing alternative code in addition to calling the service request.

67. (Original) The method of claim 65 wherein:

the alternative code performs an operation with a same purpose as that of the service request.

68. (Original) The method of claim 65 wherein:

the alternative code performs an operation with a different purpose from that of the service request.

69. (Original) The method of claim 64 further wherein the desired behavior for the software component further comprises:

preventing execution of the service request.

70. (Original) The method of claim 69 further comprising:

returning a value to the software component so as to simulate execution of the service request, without actually calling the service request.

71. (Original) The method of claim 64 further wherein the desired behavior for the software component further comprises:

preventing code that executes in response to receipt of the service request from accessing at least some data.

72. (Original) The method of claim 71 further comprising:

allowing code that executes in response to receipt of the service request to access alternative data, different from requested data.

73. (Previously Presented) The method of claim 72 wherein:

the alternative data comprises a copy of at least some requested data.

74. (Original) The method of claim 71 wherein:

code that executes in response to the receipt of the service request comprises at least alternative code.

75. (Original) The method of claim 71 wherein:

code that executes in response to the receipt of the service request comprises at least the service request.

76. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

passing alternative parameters to code that executes in response to receipt of the service request.

77. (Original) The method of claim 76 further comprising:

creating the alternative parameters by modifying original parameters passed to the service request.

78. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

executing alternative code in response to receipt of the service request.

79. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

executing alternative code in response to receipt of the service request; and
executing the service request.

80. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

preventing execution of the service request.

81. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

simulating execution of the service request by returning a value to the software component.

82. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises:

preventing code that executes in response to receipt of the service request from accessing at least some data.

83. (Original) The method of claim 82 further comprising:

allowing code that executes in response to receipt of the service request to access alternative data, different from requested data.

84. (Original) The method of claim 83 wherein:

the alternative data comprises a copy of at least some data.

85. (Previously Presented) The method of claim 64 wherein dynamically controlling the software component further comprises: returning an alternative value to the software component.

86. (Original) The method of claim 85 further comprising:

creating the alternative value by modifying a value returned by the service request.

87. (Original) The method of claim 64 further wherein the desired behavior for the software component further comprises:

preventing code that executes in response to receipt of the service request from accessing a system resource.

88. (Original) The method of claim 87 wherein:

the system resource comprises a network.

89. (Original) The method of claim 87 wherein:

the system resource comprises storage media.

90. (Original) The method of claim 87 wherein:

the system resource comprises a file system.

91. (Original) The method of claim 87 wherein:
the system resource comprises a specific file.

92. (Original) The method of claim 87 wherein:
the system resource comprises configuration information.

93. (Original) The method of claim 92 wherein:
the configuration information comprises registry data.

94. (Previously Presented) The method of claim 64 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component is static.

95. (Previously Presented) The method of claim 64 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component comprises a combination of static rules and dynamic rules.

96. (Previously Presented) The method of claim 95 further comprising:
modifying the at least one dynamically alterable condition dependent rule in response to behavior of the software component.

97. (Previously Presented) The method of claim 96 wherein modifying the at least one dynamically alterable condition dependent rule in response to the behavior of the software component further comprises:

responding to an attempt by the software component to access specific data by creating a rule that specifies that the software component cannot access other data.

98. (Previously Presented) The method of claim 96 wherein modifying the at least one dynamically alterable condition dependent rule in response to the behavior of the software component further comprises:

responding to an attempt by the software component to access specific data by creating a rule that specifies that the software component cannot perform certain functionality.

99. (Previously Presented) The method of claim 64 wherein the at least one dynamically alterable condition dependent rule that specifies the desired behavior for the software component are based on at least one of the following criteria:

a user with which the software component is associated;
identity of the software component;
a time at which the software component is executing;
history of the software component;
a source of the software component;
data which the software component attempts to access;
functionality that software component attempts to execute; and
computer network resources that the software component attempts to access.

100. (Canceled)

101. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

a receiving module, for receiving a service request made by a software component;

an altered states engine coupled to the receiving module, for:

evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state; and

dynamically selecting a desired behavior from among several behaviors for the software component based on the evaluation;

at least one rules database, for storing at least one dynamically alterable condition dependent rule, the rules database being coupled to the altered states engine; and

alternative code for executing in response to a received service request made by the software component, wherein the alternative code is used for dynamically controlling the software component such that the software component executes the desired behavior, the alternative code being coupled to the altered states engine.

102. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

a software portion for receiving a service request made by a software component;

a software portion for evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

a software portion for dynamically selecting a desired behavior from among several behaviors for the software component based on the evaluation; and

a software portion for dynamically controlling the software component such that the software component executes the desired behavior.

103. (Previously Presented) A computer system for flexibly altering software component behavior, the system comprising:

means for receiving a service request made by a software component;

means for evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

means for dynamically selecting a desired behavior from among several behaviors for the software component based on the evaluation; and

means for dynamically controlling the software component such that the software component executes the desired behavior.

104. (Previously Presented) A computer readable medium containing instructions for controlling a processor to perform steps in a method for flexibly altering software component behavior, the steps comprising:

receiving a service request made by a software component;

evaluating the service request based on at least one dynamically alterable condition dependent rule, an original or modified data in the service request, and at least one of a present software system state and a past software system state;

dynamically selecting a desired behavior from among several behaviors for the software component based on the evaluation; and

dynamically controlling the software component such that the software component executes the desired behavior.

105. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

executing alternative code in response to receiving the service request.

106. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

preventing code that executes in response to receipt of the service request from accessing at least some data.

107. (Previously Presented) The method of claim 106 further comprising:

allowing code that executes in response to receipt of the service request to access alternative data, different from requested data.

108. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

passing alternative parameters to code that executes in response to receipt of the service request.

109. (Previously Presented) The method of claim 108 further comprising:

creating the alternative parameters by modifying original parameters passed to the service request.

110. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

executing alternative code in response to receipt of the service request.

111. (Previously Presented) The method of claim 110 further comprising:

executing alternative code in response to receipt of the service request; and
executing the service request.

112. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

preventing execution of the service request.

113. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

simulating execution of the service request by returning a value to the software component.

114. (Previously Presented) The method of claim 104 wherein receiving a service request made by the software component further comprises:

returning an alternative value to the software component.

115. (Canceled)